

## Insights from the Inside

Some new Features in VGSTUDIO MAX 3.1

VG Support

## Simplify your Daily Work with VGSTUDIO MAX 3.1

Part I – Talk

Dr. Barbara Brehm

 Part II – Live presentation Yannick Luck

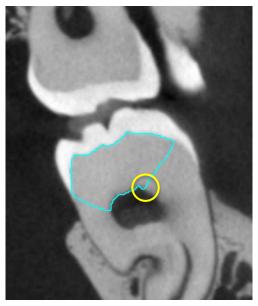




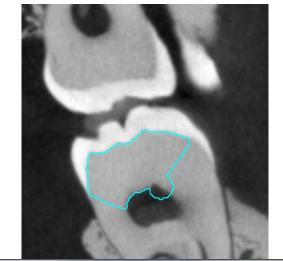


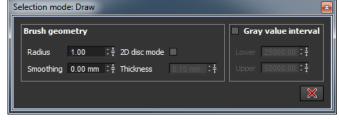
#### Draw Tool with Gray Value Interval

Start ROI

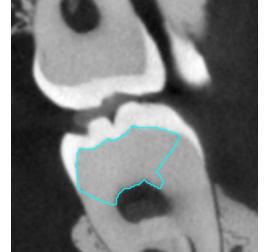


Without gray value interval





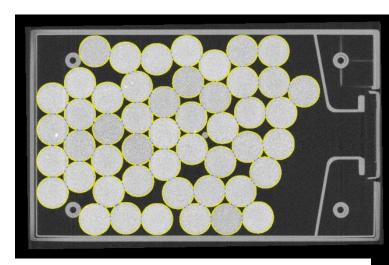
With gray value interval



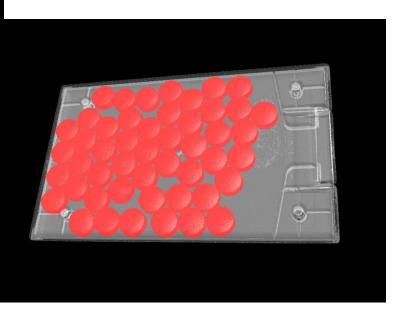
# Selection mode: Draw Brush geometry Radius 1.00 : ‡ 2D disc mode Smoothing 0.00 mm : ‡ Thickness 0.5 mm : ‡ Upper 50000.00 : ‡ X



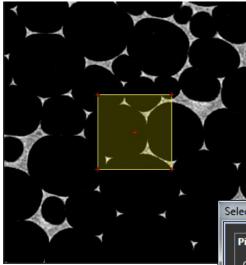
#### Gray Value Range with Histogram



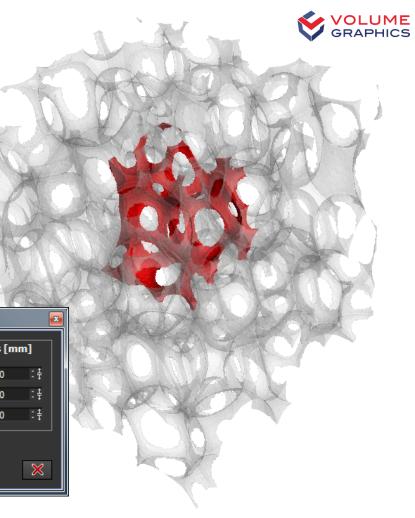
Selection mode: Gray value range				
Interval	Histogram			
Lower 31610.1 :‡				
Upper 40150.9 :‡				
	×			



#### **Define ROI Dimensions**



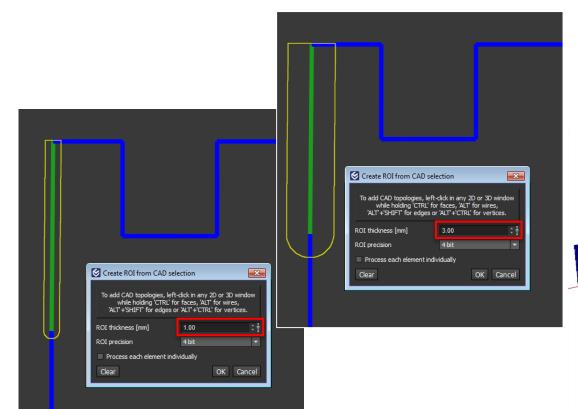
Selection mode: Rectangle				
Pivot point	Position [mm] Dimensions [mm]			
o — o	x 0.00 :‡	Width 0.50 :‡		
	Y 0.00 : ‡	Height 0.50 :‡		
o — o	Z -0.30 ∶‡	Depth 0.50 ∶‡		
✓ Make slice views follow pivot point				
		×		



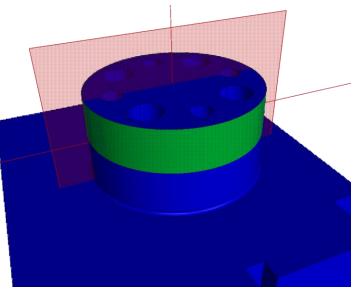
5



#### **ROI from CAD Selection**

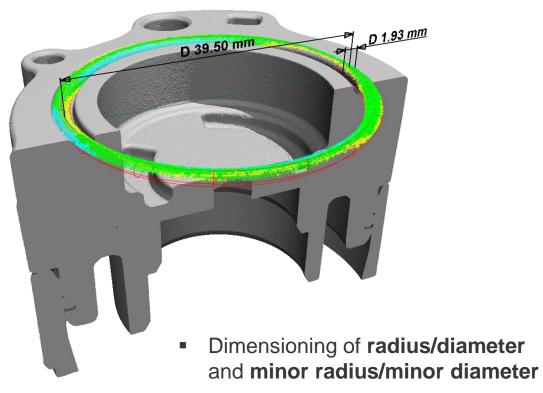


 Create ROI and define thickness





#### Torus



S Dimensioning				
Name template	<feature> <id> R</id></feature>			
	Find highest number			
	Start number:			
	Min. digits:			
Туре	Radius 🔻			
Projection	Position Radius			
View	Diameter Minor radius			
Coord. system	Minor diameter			
Source A	Torus 1 👻			
Source B	n/a 🔻			
Angle mode	n/a 💌			
Quadrant	Quadrant 0			
Angle options	Reflex angle Flip sign			
Depth	0.00 :‡			
Tol. table	Choose tol. table			
Nom.	0.00			
Tol. (lo)	1.00			
Tol. (hi)	+ 1.00			
Tol. (ex) [%]	0.000			
Allow defined elements	Yes 🔻			
Value	0.24 mm 23.53 %			
	Ok			
	IXI			
Create	Close			



#### Adjustable Auto Expand

2	<ul> <li>Use</li> <li>Incr roug</li> </ul>
Auto expand o	ptions
Shape	Disk
Diameter [mm]	2.00

- Useful for fitting datum targets
- Increases fitting stability on rough surfaces

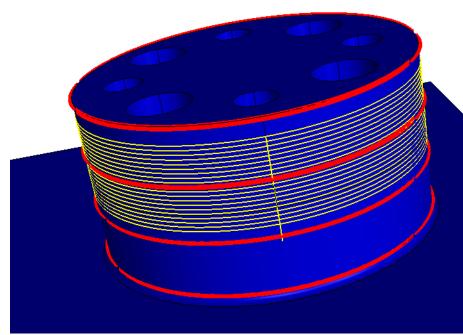
Auto expand options				
Shape	Disk	O Square		
Diameter [mm]	2.00		÷ŧ	
Step width [mm]	0.10		÷ŧ	



#### **Customizable Extraction of Medial Axis**

- Specify **Top border** and **Bottom border** separately
- Select Fit method for resulting circles

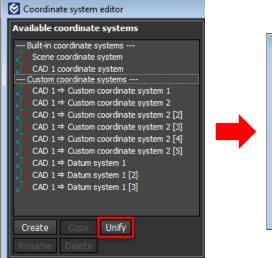
Extract medial axis	×
Parameters	
Number of circles 20	Ŧ
Top border [%] 10.00 🗘	🗄 [mm] 2.37 💠 🕂 🔊
Bottom border [%] 40.00	<sup>‡</sup> [mm] 9.46 ‡
Fit method	
Gauss (least squares) Gauss (least squares) Chebyshev (minimum zone) Chebyshev (minimum zone) inn Chebyshev (minimum zone) out Minimum circumscribed Maximum inscribed	

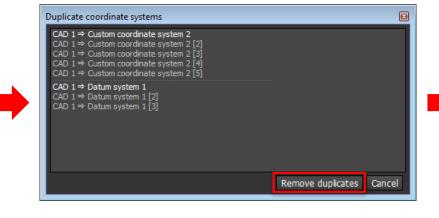


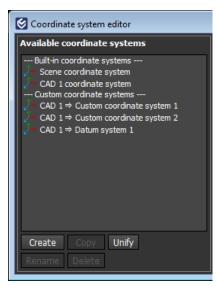


#### **Coordinate System Editor**

- Editing several coordinate systems at once Unifying
  - Unifying









#### **Coordinate System Editor**

- Editing several coordinate systems at once
  - Unifying
  - Renaming

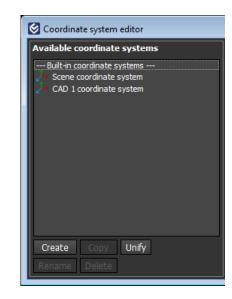
Coordinate system editor		Scoordinate system editor
Available coordinate systems		Available coordinate systems
Built-in coordinate systems     Scene coordinate system     CAD 1 coordinate system     Custom coordinate systems     CAD 1 ⇒ Custom coordinate system 1	Rename objects         Select one or more objects and change their names on 1         Changes will be applied for all objects as soon as you p         Object list	Built-in coordinate systems     Z → Scene coordinate system     Z → CAD 1 coordinate system      Custom coordinate systems     Z → CAD 1 ⇒ VG Custom coordinate system 1
<ul> <li>CAD 1 ⇒ Custom coordinate system 2</li> <li>CAD 1 ⇒ Datum system 1</li> </ul>	Group       Original name       Final name       Full path (original)       Resolved final name <none> <coordinate.datum> 1 VG <coordinate.datum> 1 <coordinate.datum> 1 of CAD 1 VG Datum system 1         <none> <coordinate.datum> 2 VG <coordinate> 2       VG Custom coordinate system 2         <none> <coordinate.s< td="">       VG <coordinate> 1       VG Custom coordinate system 2         <none> <coordinate.s< td="">       VG <coordinate> 1       VG Custom coordinate system 2         <none> <coordinate.s< td="">       VG <coordinate> 1       VG Custom coordinate system 1         <none> <coordinate.s< td="">       Image: 1       VG <coordinate< td="">         Image: 1       VG <coordinate> 1       VG Custom coordinate system 1          Image: 1       VG <coordinate> 1       VG Custom coordinate system 1          Image: 1       VG <coordinate> 1       VG Custom coordinate system 1          Image: 1       Image: 1       VG <coordinate> 1          Image: 1       Image: 1       Image: 1          Image: 1</coordinate></coordinate></coordinate></coordinate></coordinate<></coordinate.s<></none></coordinate></coordinate.s<></none></coordinate></coordinate.s<></none></coordinate></coordinate.s<></none></coordinate></coordinate.datum></none></coordinate.datum></coordinate.datum></coordinate.datum></none>	CAD 1 ⇒ VG Custom coordinate system 2 CAD 1 ⇒ VG Datum system 1
Create Copy Unify Rename Delete		Create Copy Unify Rename Delete



### **Coordinate System Editor**

- Editing several coordinate systems at once
  - Unifying
  - Renaming
  - Deleting

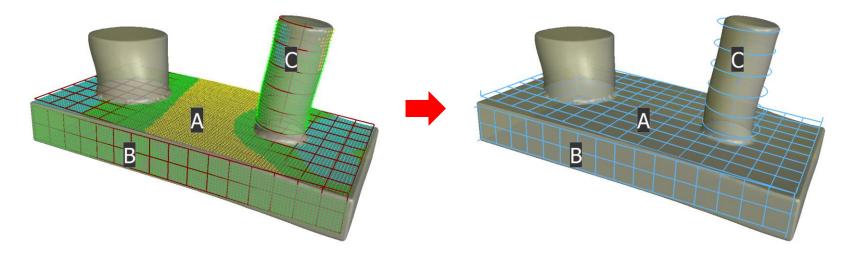
S Coordinate system editor				
Available coordinate systems				
Built-in coordinate systems → Scene coordinate system				
→ CAD 1 coordinate system				
Custom coordinate systems $\checkmark$ CAD 1 $\Rightarrow$ Custom coordinate system 1				
CAD 1 $\Rightarrow$ Custom coordinate system 2				
$\sim$ CAD 1 $\Rightarrow$ Datum system 1				
Create Copy Unify				
Rename Delete				





#### **Datum Systems**

- Common datum types and modifiers available
- Datum geometry elements refitted:
  - Considering perpendicularity constraints
  - Using contacting fit or Gauss
- Implemented according to DIN EN ISO 5459





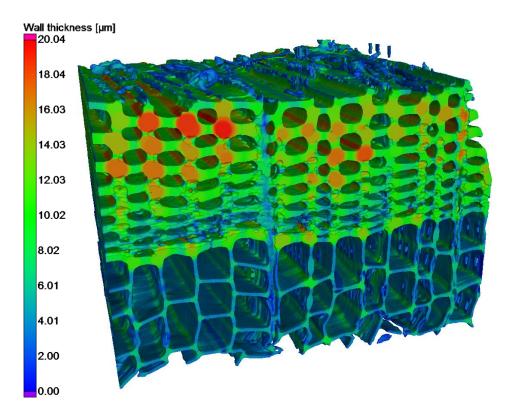
#### Comments in CM Reporting

CM Reporting: Volume 1				
Features Geometry elements Images Report				
Feature list	t			
🔍 Click t	o add a	filter or sea	rch criteria	
Name		Туре	Comment	Act. value [mm/deg]
1 <sup>k→l</sup> Feat	ure 1	Distance	I really like to add comments.	90.26 mm
3 Ø Feat	ure 2	Diameter	You can write whatever you like in the comment.	50.08 mm
2 📐 Feat	ure 3	Angle	:-)	90.02 deg

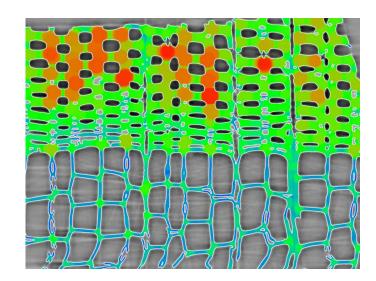
Name	Туре	Comment	Act. value [mm/deg]
Feature 1	Distance	I really like to add comments.	90.26 mm
Feature 2	Diameter	You can write whatever you like in the comment.	50.08 mm
Feature 3	Angle	:-)	90.02 deg



#### Sphere Method for Wall Thickness Analysis

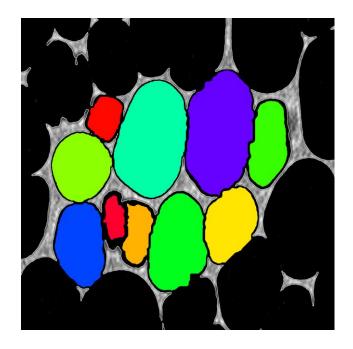


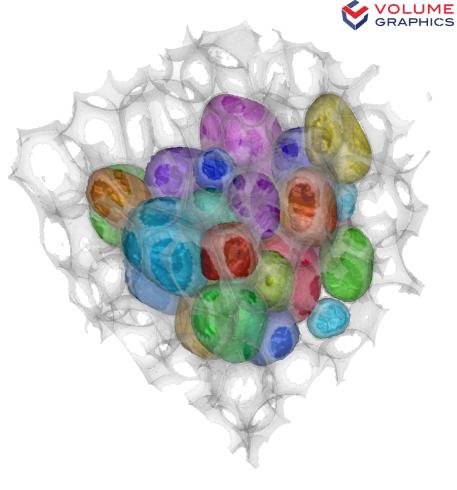
 Wall thickness determined by largest inscribed sphere



### Foam Structure Analysis

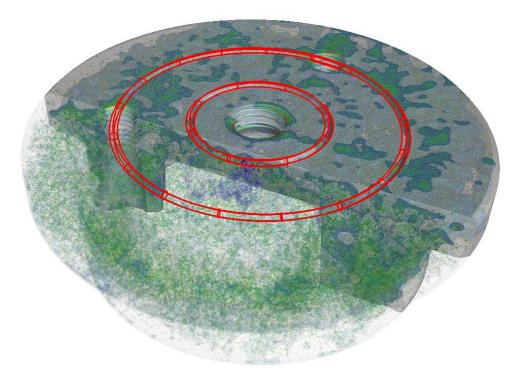
 Option to exclude border cells from statistics and visualization







#### **Part II – Live Presentation**







## Thank you

#### Contact VG Support:

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